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between Investment and Technology Transfer
Third session
Geneva, 21-25 March 1994
Item 4 of the provisional agenda

ADOPTION OF THE FINAL REPORT OF THE WORKING GROUP TO THE TRADE AND DEVELOPMENT BOARD

Draft final report of the Ad Hoc Working Group on the Interrelationship between Investment and Technology Transfer

PART ONE

Addendum

GE.94-51211

ANNEX II

Informal discussions at the third session of the Ad Hoc Working Group on the Interrelationship between Investment and Technology Transfer

(21-25 March 1994)

Summary report by the UNCTAD secretariat

A. Keynote address, guest speakers and panel discussion

1. Keynote address

I. The informal discussions of the Ad Hoc Working Group opened with a keynote address by **Mr. Hari Shankar Singhania**, President, International Chamber of Commerce, on ways and means of creating an environment conducive to foreign investment and technology transfer in developing countries. Over the past three decades, there had been a remarkable change of attitude in both developed and developing countries regarding the impact of foreign capital flows and the potential importance of technology transfer through foreign direct investment (FDI) on the development process.

2. Although FDI had accelerated rapidly over the past two decades and was being increasingly welcomed, perceptions regarding technology transfer associated with FDI were more controversial, owing to adverse effects associated with displacement or technological unemployment and degradation of the environment. Concomitantly, the notion of technology had been expanded to include technology management. In the 1990s, much had changed as both developing countries and countries in transition were seeking to attract FDI (perceived as preferable to commercial borrowing). Transnational Corporations (TNCs), as the main providers of foreign capital and technology needed, however, to assume certain obligations vis-à-vis the host countries and to abide by local rules and laws. In this context, the *Guidelines on the Treatment of FDI* issued by the World Bank have been useful in outlining standards of fair and equitable treatment for all investors regardless of national origin. Similarly, the World Industry Council for Environment had been set up by the International Chamber of Commere (ICC), as an international forum for establishing environmental standards and working towards sustainable development where leading TNCs could work with

Governments and organizations toward attaining these goals.

3. The most effective types of technology transfer resulted from joint efforts by the TNCs and the host Governments. Such partnerships helped to create the prerequisites for enhancing and diffusing new technologies. This was achieved through active encouragement of market processes, directing domestic savings towards the building up of human skills, strengthening of infrastructure such as electric power networks, roads, ports and telecommunications, and through ensuring that the fruits of progress were fairly distributed among the population. On the question of displacement due to technological change, the reality was that technology was a vital factor in sustained economic growth although there were adjustment costs in this process. In order to cushion the adverse effects of rapid technological change, safety nets were important but increased investment in education and life-long training -- in both developed and developing countries -- was essential.

4. For the principal factors that encouraged foreign firms to increase the flow of foreign investment and technology, the case of highly successful East Asian countries offered striking examples. These economies had successfully combined policies to strengthen their domestic economic base with foreign know-how, which enabled them to shift from initial import substitution to a dynamic export orientation. The "tigers", for instance Japan and the Republic of Korea, acquired frontline technology through licensing, which was absorbed and improved upon by innovation, whereas Singapore, Taiwan Province of China and the "cubs" developed their technological capabilities through attracting foreign investment.

5. Among the principal factors that encouraged foreign firms to increase the flow of investment and technology to the host countries, certain domestic conditions were critical. They included: political stability; a sound macroeconomic environment; predictable entry and exit of capital; wages, workers skills and

overall labour legislation; size and potential of the domestic market as well as export possibilities; infrastructure for production, distribution and export; and, above all, a commitment to growth.

2. Guest Speakers

6. Following the keynote speech, five guest speakers representing the enterprise sector made presentations. The guest speakers were:

- Mr. Emerson Kapaz, Pensamento Nacional das Bases Empresariais, Sao Paulo, Brazil
- Mr. Strive Masiyiwa, Retrofit, Harare, Zimbabwe
- Mr. Herman Montenegro, Chamber of Commerce and Industry, Manila, Philippines
- Mr. John Morton, British Technology Group, London, United Kingdom
- Mr. Roger Short, Small Enterprise and Local Economic Development Association (SELEDA), Bologna, Italy

7. The guest speakers discussed enterprise sector experiences and perceptions on foreign direct investment, technology transfer and technological capability-building.

8. **Mr. Emerson Kapaz** outlined the impact of globalization on the enterprise sector, particularly Small and Medium-sized Enterprises (SMEs). Changes in the structure and style of enterprise management had led away from vertical and hierarchical models towards more horizontal management systems and network relations in line with the predominance of new systems of production. This change in management style was in part the result of increased reliance on subcontracting all along the value added chain, similar to the style practised in Japan. Subcontracting now played a more important role as a critical conduit for technology transfer.

Moreover, because of the speed of introduction and application of new technologies, there was a lag in solving the problem of unemployment, which remained a critical issue in most developing countries. The necessary domestic pre-conditions for successful foreign investment which had been outlined by Mr. Singhania did not yet exist and still needed to be created. Investment in education and training should be underscored as it was of critical importance. Most developing countries still had a long way to go in terms of achieving the necessary levels of education, training and infrastructural development before attracting foreign investment.

9. **Mr. Masiyiwa** discussed the experiences of African private enterprises in the area of technology transfer and technological capability-building, stressing the importance of the partnership between the host country and the technology supplier in achieving the desired objectives. African private enterprises were characterized by several features which hampered the successful transfer of technology and development of technological capacity. The biggest obstacles were lack of skills, information and experienced managerial capacity necessary to effect technology transfer and technological development at the enterprise level. Thus, partnership with technology suppliers, based on mutual respect and common interest, was an essential condition for effective transfer of technology aimed at achieving adaptability and sustainable growth of enterprises and the economy.

10. **Mr. Montenegro** described the experience of technology transfer and SMEs development in the Philippines where SMEs faced numerous constraints, including the lack of "strategic" expertise and information on export markets and technologies. Solutions to these problems were sought through regional cooperation and, more specifically, the establishment of the Asia and Pacific Economic Council (APEC) which served as a centre for technology transfer and training.

11. More outward-oriented policies introduced by the current administration had created an environment attractive for foreign investment. This could benefit SMEs through joint ventures, market access, technology transfer and capital flows. Moreover, the Philippines Chamber of Commerce had established collaborative arrangements ("Twinning Programme") with Chambers of Commerce in other countries, notably Japan, with a view to exchanging information on technology and markets and increasing the opportunities for investment and technology flows.

12. **Mr. Morton** stressed the need to rectify the misconception that intellectual property protection offered benefits mostly to advanced industrial countries. Technology transfer was a two-way process, involving both developed and developing countries. In this connection, he noted that the British Technology Group had identified and successfully commercialized new technologies from countries as diverse as Khazakstan, Costa Rica and the Republic of Gabon. He observed that, in joint-venture activities or licensing arrangements, the benefits accruing must be mutual for all parties concerned in order to be sustainable.

13. **Mr. Short** discussed the issue of innovation and internationalization of SMEs and in particular the transnational linkages and service structure required to develop the technological capacities of those enterprises. He referred to the experience of Emilia-Romagna region in Italy which had a population of 3 million with a remarkably dynamic economy involving some 300,000 SMEs. In this region, SME-based innovative activity was at a very high level. The important concern was how to bring R&D closer to SMEs. Conversely, a very highly skilled labour force, as exists in Russia today for example, cannot generate full economic benefits for the country concerned if there is little understanding of market mechanisms. Entrepreneurship seeking short-term gains can often result in misallocation of resources and economic loss. He noted that in countries in transition to a market economy, SMEs could play a vital role in economic development.

14. Questions were then raised by the Chile, USA, Germany and Bangladesh on respectively the relationships between employment and technology, importance of intellectual property protection, the impact of privatization programmes on technology flows and the special needs of least developed countries in foreign direct investment.

15. In his concluding remarks, **Mr. Singhania**, the keynote speaker, responded that the emphasis put on human resource development through formal education and retraining was well-placed. Indeed partnership, sustainability and adaptability were necessary for successful technology transfer. The globalization of the world economy offered an opportunity for developing countries to link up with the global chain of production, taking into account their own comparative advantages. He reiterated the importance of intellectual property protection for technology flows, saying that such measures were beneficial not only to enterprises in developed countries but also in developing countries and countries in transition. On the relationship between employment and technology, he noted that although the initial effect could be to displace labour, in the long run, technology would generate economic growth and employment. With respect to environmental concerns, there was a need to keep a balance between the protection of the natural environment, economic growth and international trade. He also emphasized the importance of privatization in attracting FDI.

3. Panel discussion

16. The informal discussion continued in the afternoon of the first day as the guest speakers elaborated on the critical issues outlined in their earlier presentations.

17. **Mr. Short** highlighted the issues related to innovation and internationalization of SMEs, transnational linkages and the service structure required to develop viable enterprises. In order to remedy weak administrative capacities and bring down cost at the

firm level, SMEs could entrust specialized enterprises to deal with these tasks. To resolve the problem of lack of information, SMEs could create in collaboration with business associations a shared database yielding market information. In order to support the internationalization of SMEs, structures for the transfer of technology and consultancy capacities needed to be established. Moreover, R&D institutions had to cooperate more closely with SMEs. Low-cost solutions to strengthen SMEs encompassed the building up and utilization of local capacities, such as, for example, the conversion of military bases into industrial parks in Belarus.

18. **Mr. Morton** focused on intellectual property rights in technology transfer and development, and the GATT agreement on TRIPs. In response to a comment made concerning the international patent system as part of the "rich nations club" designed to keep out new members, he noted that technology was universally available and recogned no national boundaries. In his view, technology flow was essential for the creation of maximum value for both "exploiters" and "creators" of technology. Using the illustration of "reverse engineering" and best-practised technology respectively applied by India and the Pacific Rim countries, with such an approach developing countries need not become the "dumping ground" for obsolete technology.

19. With regard to privatization, in his experience ownership *per se* did not matter; what did count was the relationship between owners and workers, as well as the owner's long-term dedication to the future of the enterprise. Moreover, universities and industry, including SMEs, possessed vast technical expertise that was not fully exploited. The required expertise did not necessarily have to originate from well-known institutions such as the Massachusetts Institute of Technology (MIT) and California Institute of Technology (CALTEC). The wealth of expertise in the former Soviet Union should be turned into products. In order to establish closer international cooperation between public and private enterprises, communications needed to be improved.

20. **Mr. Montenegro** emphasized the SMEs' role in the process of technological change in developing countries. They were important aspects of this process including: (a) changes in global markets required SMEs continuously to upgrade their technological capacities and their access to market information; (b) regional cooperation could lower costs of procuring expertise in technology and investment while joint ventures could serve in acquiring technology, capital, and market access; (c) UNCTAD could support developing countries in matching SMEs' interests in technology transfer; (d) Governments, the private sector and regional associations should cooperate in providing technical and managerial expertise to support the growing requirements of SMLs, and in devising programmes for education and human resources development. Moreover, they should actively encourage linkages, and could provide revisions to technical education curricula and research.

21. **Mr. Masiyiwa** expanded on the experience of the Indigenous Business Development Centre (IBDC) in Zimbabwe, emphasizing that the "entrepreneurship transfer" approach had been considered a catalyst to technology transfer in the African region for two main reasons. First, SMEs suffered from lack of access to information to expand the networking capacity at the firm level. Second, the "demystification" process should be an integral part of technology transfer. African entrepreneurs wished to be a part of the "global village", and only in the informal sector in their national economies. The marketability of a product was more important than the equipment acquired. Privatization and ownership were seen as central to success.

22. **Mr. Kapaz** proposed fully integrated production systems, such as those practised in the textile sector in northern Italy, as a model for SMEs in developing countries. This system was both competitive and cooperative; it was also flexible, comprising individualization and integration of production. He then emphasized the need for greater investment in education and enterprise training for the third industrial revolution.

23. The expert from the **United States of America** briefly referred to the work of UNCTAD in relation to intellectual property rights and the code of conduct, stressing the need for an effective intellectual property system to be further developed from a perspective of the corporate executive. There had to be predictable monetary benefit as a result of technology transfer. A number of determinants figured in the considerations of a corporation, including: (a) responsibilities to corporations; (b) responsibilities to shareholders; (c) profit-making; (d) guaranteed repatriation of royalties. In summary, proprietary technology was essential to corporate survival and growth, and thus, technology rights could not be given away or donated.

24. The expert from **Chile** asserted that the specific needs of least developed countries in the areas of technology and investment needed to be given greater attention, and that UNCTAD should, in future, address these needs. He also emphasized that all countries had undertaken major efforts to promote the protection of intellectual property.

25. The expert from **Germany** asked Mr. Morton if any studies were available to illustrate the effects on investment and technology transfer of technologies available in the public domain.

26. The expert from **Mexico** stressed the importance of information flows. She agreed with Mr. Morton that technology that worked in one country would not necessarily perform equally well in another, but emphasized that problems did exist with regard to access.

27. The representative of **Argentina** asserted that the question was not whether intellectual property protection was useful or not but how to implement it. Moreover, its implications needed to be analyzed; this was an area where UNCTAD could make important contributions.

28. The expert from the **Philippines** suggested that mechanisms should be developed to reduce the risks involved in the acquisition

of technology by developing countries. There was a need for increased system-compatibility in the face of growing proliferation of standards; mechanisms for sharing the costs of R&D in technology acquisition should be explored.

29. The expert from **Switzerland** emphasized that the continuous need for technological adaptation implied a continuous effort to protect intellectual property while there was a potential for partnerships with enterprises for local sourcing, he believed that there was little hope for strategic partnerships.

30. The expert from **Austria** raised the issue of information barriers involved in knowledge transfer for the future "global village" which *inter alia* would be multilingual and hence the need to remove them. In this connection, he advocated harmonization of legal regulation, technical methods and ethical standards at the level of national legislation on intellectual property. He also announced that the International Congress on "Intellectual Property Rights for Specialized Information and Knowledge" organized by UNESCO to take place in Vienna from 21 to 25 August 1995 would deal with these issues.

31. The expert from **China** maintained that because the environment for technology exchange was not yet mature, a number of questions still remained unresolved. He proposed that the Working Group enquire into which factors would render the international environment more conducive to mutually beneficial cooperation and what partnerships could be established.

32. In commenting on the presentation of Mr. Morton, the representative of **the Syrian Arab Republic** asked whether technology was not confined to selling consumer goods. The possibilities to link technology transfer with development should be further explored.

33. The representative of **ESCAP** asked if normally a 15-year patent

period was not too long, considering that most innovations were obsolete after five years.

34. **Mr. Kapaz** reiterated the importance for the Working Group as a forum in which to identify the relationship between technological change and structural unemployment, namely, that of the speed of human adaptability which was outpaced by the speed of technological change. He was of the view that entrepreneurs had a major responsibility to ensure that technological change was acceptable to society. The Working Group should treat this problem as one of its fundamental issues.

35. **Mr. Masiyiwa** concluded that UNCTAD should support SMEs, particularly in the task of covering the costs incurred by promoting technology transfer. He agreed with the representative of Switzerland that innovation should become part of enterprise culture, and that enterprises needed to adapt to technological change. The international community needed to recognize the contributions made to innovation by developing countries.

36. **Mr. Morton** stated that new laws on intellectual property would encourage openness. Patents were mutually beneficial both to the patent holders and to the licensing companies. The time-span between innovation and patent award was still too long; risk could not be abolished entirely; profit mirrored market need. He emphasized that a unified international patent system replacing national systems could be the answer to various issues raised during the discussions. He also stressed that technology should not only be consumer-product oriented, but encompass other areas such as health care and environmental protection.

37. **Mr. Short**, in reply to Mr. Masiyawa, asserted that there was scope to explore the bottom-up-approach for international business services in the African region.

B. Country Case Studies

38. Under agenda item 2, the Ad Hoc Working Group considered a number of country case studies, which comprised, in order of their presentation:

(1) Hungary (TD/B(WG.5/Misc.18);
(2) Tanzania (TD/B/WG.5/Misc.19);
(3) Egypt (TD/B/WG.5/Misc.20);
(4) Bangladesh (TD/B/WG.5/Misc.14)

A presentation was also made by the expert from Austria.

39. The expert from **Hungary** structured his presentation around ten main points: (a) economic history; (b) objective and guidelines of the country's innovation policy; (c) aspects concerning the transformation of the economy; (d) research and development diffusion; (e) reverse transfer of technology, i.e. brain drain; (f) intellectual property rights; (g) institutions bridging the gap between research and production; (h) general trends in technology flows and the effects of privatization; (i) foreign direct investment and technology development; and (j) new strategy for technological development.

He stressed the importance of human resources development, considering it a fundamental precondition to attract foreign direct investment and a critical element in the innovation process. He underlined the problem of the brain-drain, and the real loss represented by the expatriation of scientists and technologists. Special mention was made of the privatization process in Hungary. The radical changes in the political structure had led to a healthy and gradual process of privatization of the State-owned sector, which at present represented about half of the productive services sectors. After the first phase of privatization, the Government had set up the State Property Agency with the task of privatizing other State-owned companies. According to Western estimates, 40 per cent of foreign direct investment were being invested in Hungary by means of privatization.

40. In his presentation, the expert from **Egypt** placed stress on the development of R and D and interaction among economic agents in technological capacity-building in an economy more open to the

world market. National technology policy should play an important role in technological development, complemented by a number of corrective measures involving structural and legislative innovations. Some such measures already taken by the Government of Egypt included the liberal Investment Law of 1989 and a law on new industrial zones. Unfortunately, the response to these innovations was not adequate, particularly on the side of major TNCs. An essential aspect of the above-mentioned innovations was a drive towards high-quality technical education, including that through cooperation with foreign partners and local R and D. The major issue was what kind of R and D should be undertaken by local institutions, in addition to technologies transferred through technological partnership to avoid alienation of the local R and D community. Egypt had had some positive experience with local R and D in the public sector, but in the private sector much remained to be done in this area. It was hoped that a new liberalization policy would serve this end. As for FDI, particularly that by TNCs, Egypt's experience showed that it could be instrumental in the transfer and dissemination of technology, training and applied research. An important line of future action would be to encourage these corporations to conduct original research and establish genuine R and D programmes with local institutions.

41. The expert from **Tanzania** highlighted the crucial needs of his country for effective technology capacity building and for setting up a basic infrastructure for human resources development, research and development, as well as investment. Tanzania had made considerable progress in human resources development since Independence in 1961. The country had embarked on a primary education and adult literacy campaign; at present, the primary school enrolment rate had reached 70 per cent, with an adult literacy rate of about 90 per cent. This could constitute a great potential for building technological capability in the country. Research and development activities were still very weak, with little research and development work taking place in enterprises, which were giving priority to day-to-day operational requirements.

Until the 1970s, the only research and development institutions existing in the country were the Agriculture Research Stations. Further developments in science and technology institutions came in the 1980s, with the establishment of a series of research and development institutions, e.g. the Tanzania Industrial Research and Development Organization, the Tanzania Engineering and Manufacturing Design Organization and the Institute for Production Innovation. However, their effectiveness had been hampered by the shortage of scientific and technical personnel, inadequate funding and budgetary constraints. The weak link between research and development activities in production was demonstrated by the failure to commercialize R and D results, as well as by the failure to tackle the major technological problems facing productive activities in the economy. Such a situation could be explained by the limited relevance of existing R and D to the problems of production in the country, the fragility of the productive sector and its limited financial capacity to engage in new investment. In concluding, he indicated that in the current economic environment, characterized by the globalization of markets, the least developed countries were finding themselves in a particularly difficult position. In spite of important efforts undertaken to that end, they did not yet dispose of the critical tools for effectively supporting their technological capacity and their development initiatives.

43. The expert from **Austria** spoke about the role of a specialized language, i.e. terminology, in the technology transfer process. He stated that whenever and wherever specialized information was dealt with (i.e. creation, recording, communication, processing for storage and retrieval, translation or transformation for re-use, etc.), a specialized language played a crucial role. Such a language was part of the communications undertaken in the process of knowledge and technology transfer which could succeed only if the recipients understood the terminology used. Only recently (around 1980) had terminology planning efforts on a comprehensive scale emerged at national and regional level. However, a

systematic approach regarding terminology was necessary in all countries. He advocated that developed and developing countries alike conceive and implement terminology planning strategies in support of:

- higher education (e.g. by harmonizing textbook contents);
- knowledge transfer (e.g. in the form of high-quality electronic dictionaries and encyclopedia);
- research and development; and design.

He explained the role played by the International Information Centre for Terminology (INFOTERM), set up by the Government of Austria in 1971 in agreement with UNESCO. INFOTERM had several activities related to the provision of services for efficient knowledge transfer on the basis of terminological methods. It constituted a comparatively small but quite effective contribution to 'assistance for self-assistance' within the framework of Austrian ODA.

General discussion

44. Following the presentation of country case studies, numerous issues were raised. The debate was characterized by agreement around the question of technological capacity-building. Numerous delegations, in referring to the studies presented, stressed that a skilled and technologically capable workforce was a major requirement for technological development. To this, the expert from Tanzania added that technological partnerships were only possible if partners had equivalent degrees of know-how, which called for the development of local technological capacities in developing countries, particularly the least developed among them. The expert from Cuba explained that education and training for the population as a whole should be considered a fundamental government effort to be undertaken by all countries, independently of their politico-economic systems. The delegation of France then highlighted the fact that technological capacity-building was a major stepping stone in the process of effective technology transfer, and that the

learning of terminology was a first step in mastering technology. Two main challenges faced member countries of the Working Group: the problem of technological underdevelopment and the risk of marginalization of LDCs in global development.

45. The experts from **China**, **Hungary** and **Egypt** raised the issue of the brain-drain. It was stated that this problem was associated with the lack of opportunities for career development in the countries of origin. However, some programmes, such as UNDP's TOKTEN had helped to alleviate this problem.

46. The representative of the Economic Commission for Africa noted that in spite of a relatively high educational level and availability of qualified personnel in many developing countries, the real flow of technology to these countries was rather low. He said that elaboration by developing countries of development policies, encouragement of traders to invest more in technological development, putting more emphasis on commercialization of R and D results and establishing a more appropriate climate for investors could be instrumental in remedying the above situation.

47. The representative of **ESCAP** called on the Working Group to consider how to go about assisting developing countries to develop:

- appropriate institutions to facilitate investment;
- appropriate institutions for training;
- advisory services;
- quality services;
- linkages.

He stated that developed countries should be able to assist the Working Group in this endeavour and the possibility of technical cooperation among developing countries should also be explored.

48. The representative of **UNIDO** considered the links existing between technological and entrepreneurship development. Promoting this link was fundamental, he believed, particularly in Africa. However, projects for entrepreneurial development were expensive

undertakings for which financial resources needed to be raised. Referring to the expertise and knowledge accumulated by his organization, he drew the attention of delegations to the similarity between issues discussed in the Ad Hoc Working Group and recent activities carried out by UNIDO. He assured the Working Group of the readiness of his organization to collaborate with UNCTAD on the subjects under discussion.

49. The expert from **Germany** emphasized the need for cooperation and coordination between UNCTAD and UNIDO as appropriate.

50. The expert from **Chile**, in reacting to the statement made by the representative of UNIDO stated that UNCTAD had a long history of involvement in the area of transfer and development of technology, and had accumulated a great deal of information and experience in this area. The Ad Hoc Working Group on Interrelationship between Investment and Technology Transfer established by the Cartagena Commitment was building upon this long-standing experience.

51. The representative of **"Association des Zones Franches d'Amérique latine et des Caraïbes"** (AZOLCA), a non-governmental organization, stressed the importance of the involvement of the enterprise sector in the transfer and development of technology.

52. In introducing the case study of his country, the expert from **Bangladesh** referred to some basic areas of concern in the area of technology. Regarding human resources development, he stressed the inadequacy of the existing education systems in his country to meet the real need of industry. There were 58 R & D organizations in different sectors in the country. R & D activities had suffered from shortages of skilled manpower owing to the brain-drain and lack of linkages among universities and R & D organizations. Bangladesh prepared its first National Science and Technology Policy in 1980 which was subsequently revised in 1986. Technological capability in the agricultural sector was better

developed than in other sectors. Particular advances had been made in the improvement of seeds. Capability had been developed also in the manufacture of pumps, engines and motors. On the whole, the performance of the public sector had remained unsatisfactory. Failure to curb continued imports of machinery and equipment for which there was local manufacturing capability had hampered technological capacity-building. For example, fertilizer factories were set up as turn-key projects. All procurement of spare parts was based on foreign supply owing to aid conditionality. In concluding, he said that it was essential to have a long-term national technology development plan along with effective policy instruments to encourage investment flow and to facilitate technology transfer.

53. The expert from **Tanzania** said that the presentation of Bangladesh had made a strong case for the needs of the least developed countries, and underlined the problems facing them in the area of transfer and development of technology.

54. The expert from **Nigeria** emphasized that the least developed countries faced an acute problem of finding employment for their qualified personnel, including university graduates. This was attributed to the deteriorating economic environment and lack of linkages between the educational system and the productive sector. There was a need to promote specific industrial and entrepreneurial training.

55. The expert from **Nepal** associated himself with views expressed by the Representatives of Bangladesh and Tanzania.

56. The expert from **China** hoped that special concerns of the least developed countries would be taken into account in the outcome of the work of the Ad Hoc Working Group.

57. In replying to some questions, the expert from **Bangladesh** stated that financial constraints and conditionalities imposed by

donors did not leave much choice in the acquisition and commercialization of technology.

58. In introducing the EMPRETECH programme designed to assist SMEs to start up, grow and internationalize, the **Deputy to the Secretary General of UNCTAD** indicated that the programme was operational in five Latin American countries, and in three countries in Africa and would eventually include 18 other countries. Approximately 2,000 entrepreneurs had received training in business skills and expansion. The Centre on Transnational Corporations had originated the programme which the new Division for Science and Technology was now pursuing with great energy. A report on EMPRETECH's experience was available from the secretariat. He also introduced UNCTAD's new TRANSTECH programme which was complementary to the EMPRETECH programme. TRANSTECH was intended to promote technological capacities of SMEs for improved competitiveness. The programme would soon be operational and had received the support of the Government of Denmark.

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PART ONE

Addendum 2

GE.94-51218

C. Third Session

1. Guest speakers

1. The third and final session of the Ad Hoc Working Group was held in March 1994. At the beginning of the session, seven guest speakers from the enterprise sector were invited to exchange views on investment-related technology issues. Their presentations and the ensuing discussions are included in the summary report of the "Informal discussions at the third session of the Ad Hoc Working Group on the Interrelationship between Investment and Technology Transfer" [annex II].

2. The informal discussions opened with a keynote address by Mr. Hari Shankar Singhania (President, International Chamber of Commerce) on ways of establishing a favourable environment for foreign investment and technology transfer. Reflecting on transnational corporations (TNCs) as the main source of foreign capital and technology, Mr. Singhania argued that the most effective cases of attracting investment and technology resulted when Governments created favourable conditions for the operation of firms, including political and macroeconomic stability, facilitation of capital movements, availability of an educated and skilled labour force, a supportive legal environment and infrastructure, and demonstrated long-term commitment to growth. Mr. Singhania also discussed the case of the successful East Asian economies which combined policies to strengthen their economic base with foreign know-how and which shifted in due time from inward to export orientation.

3. The Ad Hoc Working Group also benefitted from the presentations by guest speakers from the enterprise sector on their perceptions of the roles of foreign direct investment, technology transfer and technological capability-building in achieving competitiveness. The speakers were Mr. Emerson Kapaz (General Coordinator, Pensamento Nacional das Bases Empresariais, Sao Paolo, Brazil), Mr. Strive Masiyiwa (Managing Director, Retrofit, Harare, Zimbabwe), Mr. Herman Montenegro, Chamber of Commerce and Industry, Manila, the Philippines), Mr. John Morton (Executive Director, British Technology Group, London, United Kingdom), and Mr. Roger Short (Projects Director, Small Enterprise and Local Economic Development Association (SELEDA), Bologna, Italy).

4. The presentations were followed by informal discussions in which the guest speakers elaborated on critical issues and addressed on concerns raised by experts. The issues included, *inter alia*, the establishment of effective intellectual property rights systems and the impact on investment, technology transfer and technological innovation of the GATT agreement on TRIPs; the role of small and medium-sized enterprises in developing countries and the possibilities of strengthening their technological capacities; the effects of private and public ownership on investment and technology transfer; the importance of linkages between enterprises, universities and research institutions; and the need for greater investment in education and enterprise-level training.

2. Case studies

5. The meeting benefited from the presentation of four case studies submitted by developing countries. The studies, in order of presentation, are listed in annex II. A presentation was also made by the expert from Austria.

6. The case studies and presentations raised many of the issues reported by the 15 case studies discussed at the second session of the Ad Hoc Working Group. More specifically, however, they highlighted the challenges and opportunities faced by developing countries, particularly the least developed countries and countries in transition to a market economy, in attracting foreign direct investment, acquiring technology and building technological capabilities. They also highlighted the efforts of Governments and the enterprise sector to attract investment and technology flows, develop the innovative capacity of domestic firms and achieve international competitiveness.

7. The case studies showed that the contributions of technological transfer to technology development and economic growth depend not only on the policies in place but also on the technological behaviour of recipient firms -- both during the technology transfer phase and the subsequent phase of production. Equally important are the level of linkages among and between enterprises and research institutions, the availability of

qualified technical personnel and the support provided in the field of standardization, quality control, patent information, etc.

8. The case studies stimulated discussion on the special problems faced by the least developed countries in building technological capability in an economic environment characterized by globalization of markets. In that context, particular attention was given to upgrading of scientific and technical personnel, strengthening of linkages between R & D activities and production and creating the institutional mechanisms for the development of networking at all levels (national, regional and international) supported by the private and public sectors. The need for new and innovative policy approaches to tackle the constraints associated with technological development efforts of the least developed countries was emphasized.